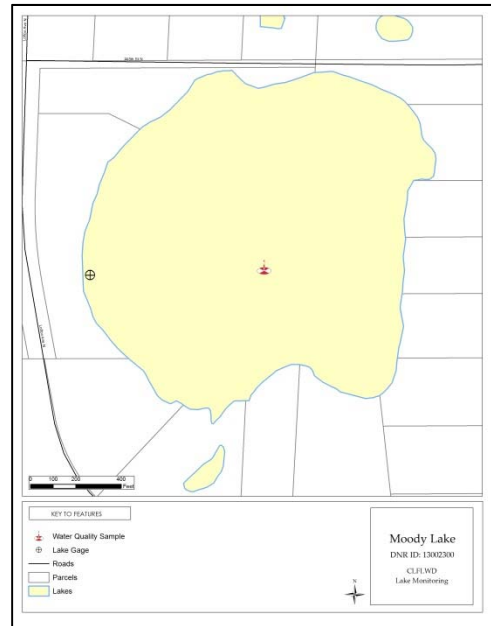


Moody Lake

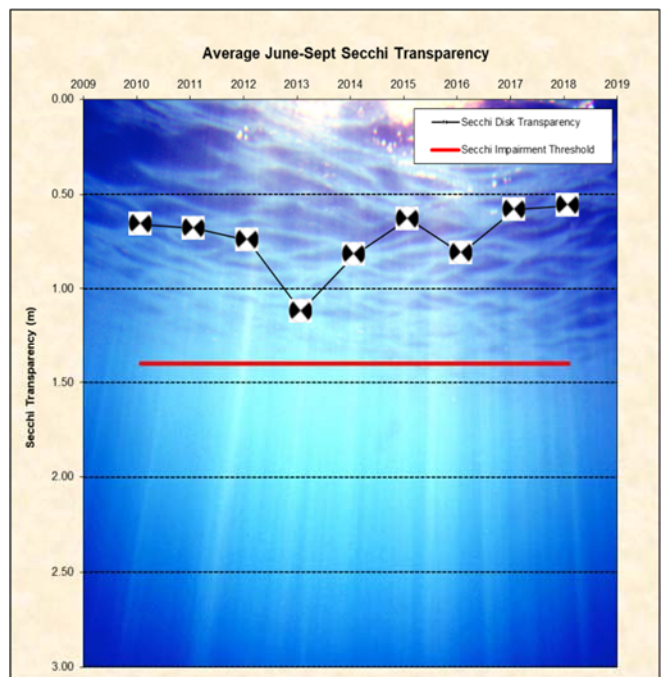
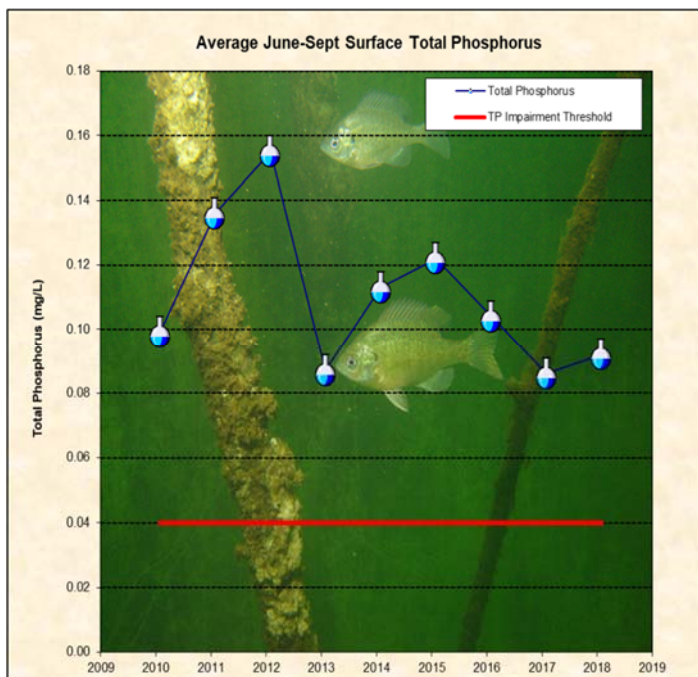
2018 Lake Grade: D

- DNR ID #: 13002300
 - Municipality: Chisago Lakes Township
 - Location: SW^{1/4} Section 32 T33N-R20W
 - Lake Size: 45.33 acres
 - Maximum Depth (2018): 48 ft.
 - Ordinary High Water Mark: N/A
 - 49% Littoral
- Note: Littoral area is the portion of the lake <15 ft. and dominated by aquatic vegetation.



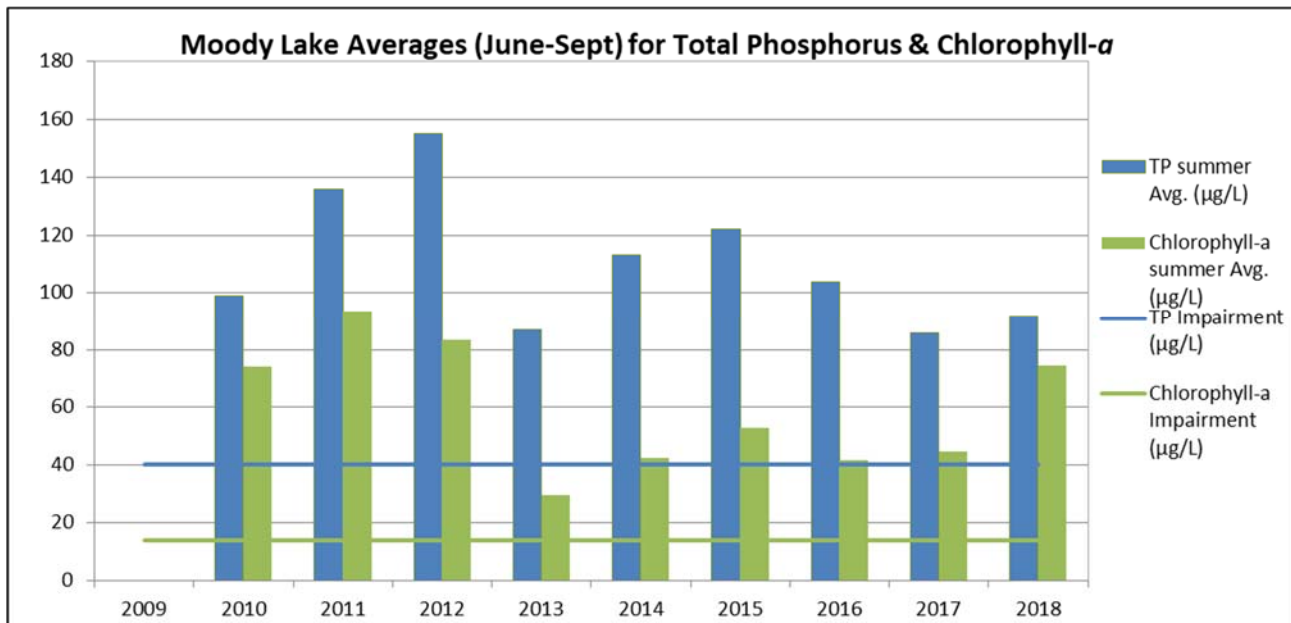
Summary Points

- Based on the chlorophyll-*a* results Moody Lake was considered eutrophic in 2018, according to the Carlson Trophic State Index.
- Using the 2-tailed Kendall Tau correlation test ($p < 0.05$) there is a statistically significant **improving** trend for the average total phosphorus and no trend for the average Secchi transparency or average chlorophyll-*a* at this time.
- The major land use is rural/agricultural.
- The lake stratified in 2018 with the thermocline varying between 3 and 4 meters.
- Moody Lake is listed as impaired for nutrients on the Minnesota Pollution Control Agency's Impaired Waters List.
- Curly-leaf pondweed (an invasive aquatic plant) is present in this lake.



Date/Time	Total Phosphorus (mg/L)	Uncorrected Trichromatic Chlorophyll-a (µg/L)	Pheophytin-Corrected Chlorophyll-a (µg/L)	Total Kjeldahl Nitrogen (mg/L)	Secchi Disk Depth (m)	Surface Temperature (Celsius)	Surface Dissolved Oxygen (mg/L)
5/14/2018 9:25	0.056	8.4	6.9	1.00	2.13	17.8	9.08
5/30/2018 8:38	0.038	17.0	15.0	1.20	1.22	24.5	7.11
6/12/2018 13:21	0.073	35.0	34.0	1.50	0.76	21.5	9.28
6/25/2018 9:48	0.103	120.0	110.0	2.10	0.30	24.8	10.28
7/9/2018 9:48	0.084	71.0	73.0	1.90	0.46	26.6	6.94
7/23/2018 10:25	0.153	130.0	130.0	2.70	0.15	26.1	12.15
8/6/2018 11:10	0.112	91.0	84.0	2.00	0.38	23.5	5.95
8/20/2018 9:00	0.112	92.0	93.0	2.00	0.30	25.5	6.44
9/5/2018 10:49	0.041	47.0	43.0	1.60	1.07	22.3	6.23
9/17/2018 8:45	0.060	34.0	30.0	1.50	1.07	24.3	6.83
10/1/2018 10:03	0.062	17.0	16.0	1.90	1.83	12.6	6.01
10/16/2018 10:27	0.164	6.8	5.4	1.90	1.52	7.4	6.73
2018 Average	0.088	55.8	53.4	1.78	0.93	21.4	7.75
2018 Summer Average	0.092	77.5	74.6	1.91	0.56	24.3	8.01
Volunteer Data							
5/20/2018 9:55	0.050	12.0	9.9	0.95	1.90	18.0	NA
6/11/2018 11:00	0.052	34.0	32.0	1.20	1.10	21.9	NA
7/15/2018 11:00	0.183	110.0	120.0	2.40	0.50	28.3	NA
8/12/2018 18:30	0.097	55.0	49.0	1.60	0.50	29.0	NA
9/9/2018 19:00	0.055	49.0	47.0	1.50	0.70	21.5	NA
10/6/2018 17:00	0.066	6.4	6.5	1.40	2.00	11.2	NA
2018 Average	0.084	44.4	44.1	1.51	1.12	21.7	NA
2018 Summer Average	0.097	62.0	62.0	1.68	0.70	25.2	NA
Water quality thresholds are 0.04 mg/L TP, 14 µg/L CL-a, 1.4 m Secchi depth*							
Shallow lake water quality thresholds are 0.06 mg/L TP, 20 µg/L CL-a, 1.0 m Secchi depth*							
	High	High Date	Low	Low Date	Average		
2018 Elevation (ft)	911.99	7/23/2018	911.31	6/12/2018	911.63		

*Data requirements and determinations of use assessment according to the MPCA's Guidance Manual for Assessing the Quality of Minnesota Surface Waters: "Samples must be collected over a minimum of 2 years and data used for assessments must be collected from June to September. Typically, a minimum of 8 individual data points for TP, corrected chlorophyll-a (chl-a corrected for pheophytin), and Secchi are required. Data used for phosphorus and chlorophyll-a calculations are limited to those collected from the upper most 3 meters of the water column (surface). If more than one sample is collected in a lake per day, these values are averaged to yield a daily average value. Following this step, all June to September data for the 10-year assessment window are averaged to determine summer-mean values for TP, corrected chl-a, and Secchi depth. These values are then compared to the standards and the assessment is made."



Lake Water Quality Summary										
	Lake Grades (May-Sept)									
	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Total Phosphorus (mg/L)	D	D	D	D	D	D	F	D	D	NA
Chlorophyll-a (µg/L)	D	C	C	D	C	C	F	F	D	NA
Secchi depth (ft)	D	D	D	F	D	D	D	D	D	NA
Overall	D	D+	D+	D-	D+	D+	F+	D-	D	NA

Moody Lake Water Surface Elevation Statistics

Ordinary High Water Level (OHW) Elevation: N/A

100 Year Flood Elevation (CLFLWD): 892.1 ft.

Highest Recorded Elevation: 913.32 ft. (09/22/2015)

Lowest Recorded Elevation: 911.31 ft. (06/12/2018)

Datum: NAVD 88 (ft.)

